PATENT SPECIFICATION 596,135

Application Date: July 25, 1945. No. 19038/45.

Complete Specification Left: April 25, 1946.

Complete Specification Accepted: Dec. 29, 1947.

PROVISIONAL SPECIFICATION

Improvements in or relating to Hot Water Towel Airers and the like

We, W. C. YOUNGMAN LIMITED, a Company incorporated according to British Law, of Wandsworth Works, Wandsworth Road, London, S.W.8, and WILLIAM CHARLES YOUNGMAN, British Subject, of "Fircroft", Garrad's Road, Streatham, London, S.W.16, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in hot water towel airers and the like.

The object of this invention is to provide means whereby tubes can be securely connected to elbows, tees or like fittings of an article such as a towel airer without the employment of a jointing medium such as solder, brazing spelter or welding wire so that the parts can be assembled without detriment after their final treatment such as polishing, plating or other decorative treatment, thus avoiding the final finishing of the article after assembly which has heretofore been necessary.

A further object is to provide an improved method of construction which will permit of a greater scope in decorative treatment, for example, the fittings may be given a different finish from the tubes; further fittings and tubes of different metals or materials may be assembled together.

A still further object is to provide an improved method of assembly which can be carried out by unskilled labour and owing to the fact that no jointing medium is employed the article will not be vulnerable or likely to crack if suddenly shocked as in the case of towel airers now constructed by the usual known methods.

With these and other objects in view the invention consists in a method of manufacturing a towel airer or like article in which the fittings such as elbows and tees are provided with spigots which are turned to a very close limit to the bore of the tube ends so that they can be mated together to seal the joint by means of hydraulic or like pressure, the turned surfaces of the mating parts being a "mirror" finish free from tool marks.

The invention also consists in turning the mating spigots of the fittings and bore in the tube ends dead parallel or with a slight taper. In the latter case the parts can be partly mated by hand and then forced home or fully mated by hydraulic pressure to provide a leak proof connection.

According to the preferred method of the construction of a towel airer made up of tubes and elbows and tee fittings these fittings are formed with reduced extensions or spigots having a slight taper and the ends of the tubes are also bored with a similar taper. Preferably each spigot is turned .006 of an inch smaller at its outer end than at its inner end over a length of one inch and the bore in the end of each tube is similarly tapered. The spigots are however made for instance .003" larger in diameter than the bored tube ends. This taper on the co-operating parts will enable a tube to be mated with the spigot of a fitting about half way by hand so that the parts can be finally mated by hydraulic or like pressure. It will be understood that the co-operating surfaces are so turned as to provide a "mirror" finish free from tool marks and that the taper in the tube end must be exactly the same as that on the fitting. The abutting end surfaces of the tube and the fitting are preferably exactly normal to the axis of the tube spigot so that when the tube is forced home only a right angled join will be seen on the fitting. The visible parts of the elbows and tees may be of the usual shape or of D or of any other shape in cross section.

Alternatively the co-operating surfaces of the spigots and the bore of the tube ends may be dead parallel and turned to force fit limits so that they can be connected and secured by hydraulic pressure

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or the like. It will be seen that the improved method of assembly will permit of the use of stock parts finally polished, plated or given decorative treatment before being assembled. It will also permit a greater scope in decorative treatment since, for example, the fittings may be given a different finish from the tubes. Further, fittings and tubes of different metals or materials may be assembled together.

Dated this 25th day of July, 1945.

WITHERS & SPOONER,
Chartered Patent Agents,
148—150, Holborn, London, E.C.1,
Agents for the Applicants.

COMPLETE SPECIFICATION

Improvements in or relating to Hot Water Towel Airers and the like

We, W. C. YOUNGMAN LIMITED, a Company incorporated according to British Law, of Wandsworth Works, Wandsworth Road, London, S.W.8, and WILLIAM CHARLES YOUNGMAN, British Subject, of "Fircroft", Gorrad's Road, Streatham, London, S.W.16, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in hot water towel airers and the like.

The object of this invention is to provide means whereby tubes can be securely connected to elbows, tees or like fittings of an article such as a towel airer without the employment of a jointing medium such as solder, brazing spelter or welding wire so that the parts can be assembled without detriment after their final treatment such as polishing, plating or other decorative treatment, thus avoiding the final finishing of the article after assembly which has heretofore been necessary.

A further object is to provide an improved method of construction which will permit of a greater scope in decorative treatment, for example, the fittings may be given a different finish from the tubes; further fittings and tubes of different metals or materials may be assembled together.

A still further object is to provide an improved method of assembly which can be carried out by unskilled labour and owing to the fact that no jointing medium is employed the article will not be vulnerable or likely to crack if suddenly shocked as in the case of towel airers now constructed by the usual known methods.

With these and other objects in view the invention consists in a method of manufacturing a towel airer or like article in which the fittings such as elbows and tees are provided with spigots which are turned to a very close limit to the bore of the tube ends, the turned surfaces of the spigots and tube ends having a "mirror" finish free from tool marks and forced and mated together to seal the joint by means of hydraulic or like pressure.

The invention also consists in turning the mating spigots of the fittings and bore in the tube ends dead parallel or with a slight taper. In the latter case the parts can be partly mated by hand and then forced home or fully mated by hydraulic pressure to provide a leak proof connection.

The invention will now be described with reference to the accompanying drawing in which:—

Fig. 1 is an elevation of an elbow fitting the angles of taper of the spigots being exaggerated for the purpose of illustration;

Fig. 2 is a longitudinal section of the end of a tube for connection with the spigot of the fitting;

Fig. 3 is a sectional elevation showing the tube partly mated on one of the spigots of the elbow fitting;

Fig. 4 is a sectional elevation showing the tube forced into position, and

Fig. 5 is an elevation of a tee fitting and a section of the end of a tube adapted for forcing on one of the spigots of the fitting.

According to one form of this invention applied to a towel airer made up of tubes and elbows and tee fittings these fittings are formed with reduced extensions or spigots. The fitting of a tube 1 to an elbow 2 is shown in Figs. 1 to 4. Each elbow 2 is formed with reduced spigots 3 and these spigots 3 have a slight taper 4. The end of each tube 1 is also bored with a similar taper 5. Preferably each spigot 3 is turned .006 of an inch smaller at its outer end than

at its inner end over a length of one inch and the bore in the end of each tube 1 is similarly tapered. The spigots 3 are however made for instance .003" larger in diameter than the bored tube ends. This taper on the co-operating parts will enable a tube 1 to be mated with the spigot 3 of a fitting about half way by hand as shown in Fig. 3 so that the parts can be finally mated as shown in Fig. 4 by hydraulic or like pressure. It will be understood that the co-operating surfaces are so turned as to provide a "mirror" finish free from tool marks and that the taper in the tube 1 must be exactly the same as that on the fitting. The abutting end surfaces 6 and 7 of the tube 1 and the fitting respectively are preferably exactly normal to the axis of the tube spigot so that when the tube 1 is forced home only a right angled join will be seen on the fitting. The visible parts of the elbows and tees may be of the usual shape or of D or of any other shape in section.

Alternatively as shown in Fig. 5 the co-operating surfaces of the spigots 3 of the fitting and the bore 8 of the tube ends are parallel and turned to force fit limits so that they can be connected and secured by hydraulic pressure or the like. It will be seen that the improved method of assembly will permit of the use of stock parts finally polished, plated or given decorative treatment before being assembled. It will also permit a greater scope in decorative treatment since, for example, the fittings may be given a different finish from the tubes. Further, fittings and tubes of different metals or materials may be assembled together.

We are aware that in conduits for electic wiring it has previously been proposed to taper internally the end of the pipes to fit into the ends of junctions or accessories machined and tapered internally to provide a metal to metal joint for electrical continuity and in the manufacture of radiators or condensers a water tight joint is made by tapering the ends of the tubes and forcing them by hydraulic pressure into holes formed in the end plates, but in the present invention the fittings of a towel airer and the like, such as elbows and tees are formed with spigots turned to a very close limit to the bore of the tube ends and with a "mirror" finish so that they can be forced together by hydraulic or other pressure to provide a fluid tight joint.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A method of manufacturing hot water towel airers and the like consisting in providing the fittings such as elbows and tees with spigots turned to a very close limit to the bore of the tube ends, the turned surfaces of the spigots and tube ends having a "mirror" finish free from tool marks and forced and mated together to seal the joint by means of hydraulic or like pressure.

2. A method as claimed in Claim 1 in which the spigots of the fittings and the bore of the tube ends are turned with a slight taper.

3. A method as claimed in Claim 2 in which the spigots are turned .006 of an inch smaller at their outer end than at their inner end over a length of one inch and the bore in the end of each tube is similarly tapered.

4. A method as claimed in Claim 2 in which the spigots are made .003 of an inch larger in diameter than the bored tube ends.

5. A method as claimed in Claim 1 wherein the abutting surfaces of the tubes and the fittings are turned exactly normal to the axis of the tubes so that when the tubes are forced home only a right angled join will be seen on the fittings.

6. A method as claimed in Claim 1 in which the co-operating surfaces of the spigots and the bore of the tube ends are dead parallel and turned to force fit limits and are connected and secured together by hydraulic pressure or the like.

7. The improved method of constructing hot water towel airers and the like substantially as described with reference to Figs. 1 to 4 or to Fig. 5 of the accompanying drawing.

Dated this 25th day of April, 1946.

WITHERS & SPOONER,
Chartered Patent Agents,
148—150, Holborn, London, E.C.1,
Agents for the Applicants.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1948.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies, price 1s. 0d. each (inland) 1s. 1d. (abroad) may be obtained.

[This Drawing is a reproduction of the Original on a reduced scale.]

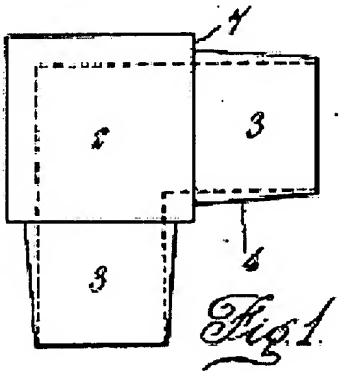


Fig. 1.

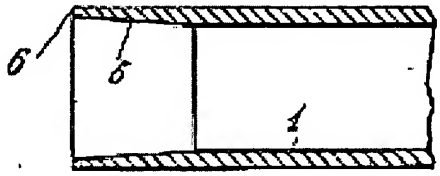


Fig. 2.

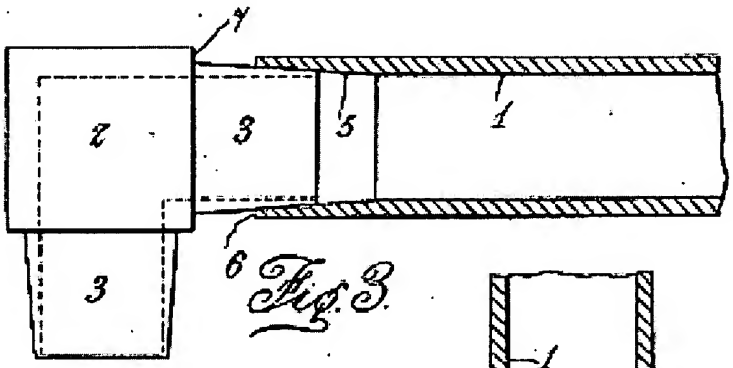


Fig. 3.

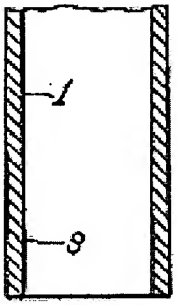


Fig. 5.

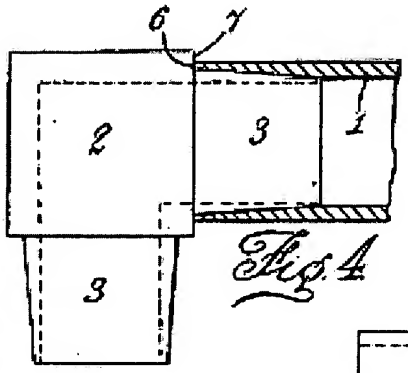
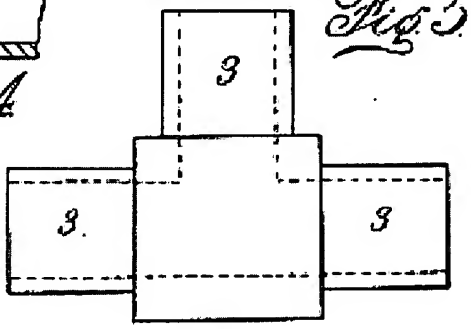


Fig. 4.



H.M.S.O. (Ty.P.)